WSDL RDF Mapping

Jacek Kopecký
2005/12/14
Introduction

- WSDL 2.0 RDF Mapping
- Representation of WSDL 2.0 in RDF
  - In an OWL ontology
- Product of W3C WS-Desc WG
- Jacek the main editor
Presentation Overview

• Intentions of DERI
• Mapping details
• Differences from component model
• Logistical problems
• Future work
Intentions of DERI

- Use of WSDL information in semantic data
  - Grounding WSMO directly to components
- Visibility of DERI
  - Commitment to Semantic Web Services
WSDL RDF Mapping Structure

• Core components
• Extensibility
• Message Exchange Patterns
• Predefined extensions, operation styles
• SOAP and HTTP bindings
WSDL Structure
WSDL Structure With Links
Core Components

• Description, Interface, Binding, Service
  • OWL classes
  • Generally referenced using properties with the same name, but lowercase
  • Unsure about namespace(s)
• Interface contains operations, faults
  • Operation contains message references
  • Operation has MEP, styles
  • Ops and faults point to elements
• Binding follows Interface structure
  • Binding types (SOAP, WSDL) are rdf:type
• Service has interface, endpoints
  • Endpoint has binding, address
WSDL Extensions

• Extension points
  • Like MEPs, operation styles, bindings
  • Extensions should provide mapping similar to ours

• Features and Properties
  • Use URIs and QNames, easy to model in RDF

• Generic extensions
  • Mandatory extensions must specify RDF mapping for their parent components
  • Known optional extension must specify RDF mapping for self
  • Unknown optional extension elements mapped to XML literal
  • Unknown extension attributes modeled as ExtensionAttribute class

• Documentation as XML literal
Message Exchange Patterns

- Modeled more formally than in component model
  
  - Class MessageExchangePattern
  - An MEP *defines* a number of MessageLabels

- InterfaceOperation points to MEP
  
  - InterfaceMessageReference points to MessageLabel
Operation Extensions

• Operation styles
  • Just URIs, trivial mapping to RDF
  • RPC style adds extension property

• Operation Safety (predefined extension)
  • SafeInteraction class for InterfaceOperations
SOAP and HTTP Bindings

• 2 classes and a bunch of properties
• SOAP binding class
  • Needs SOAPMessageExchangePattern class
    – ideally should be done by XMLP WG
• HTTP binding class
  • Plus subclass HTTPBindingWithCookies
WSDL Structure With Links (repeated)
WSDL/RDF Structure
Differences from Component Model

- RDF mapping works on **meaning** of the components
  - Mandatory extensions may change it, that’s why such extensions must say how components are mapped
- WSDL has one Description, and RDF graph can have many
  - WSDL ontology is more lax than the component model (validation vs. inference)
- Component naming
  - WSDL has QNames, RDF has URIs
  - QName deconstruction from URI is possible, not encouraged
  - Direct references between the components
- Imports and Includes are gone
- Enumerated properties into classes
  - Like message direction
Logistical Problems

• Deliverable mandated by charter
  • Charter running out in Jan 2006 (extension likely)
• Only two group members work on it
  • Bijan Parsia main editor until this summer
  • Little progress, Jacek took over
  • First public draft 2005/11/4
• Unsure how to reach WG consensus
  • WG members cannot really review this
  • Few are interested
  • Unclear about the customer base
Further Work

• Completing the mappings
• Maintenance wrt. issue resolutions
• CR (Candidate Rec) testing criteria?
  • CR = W3C beta testing
  • Two implementations
  • Turning WSDL/XML to WSDL/RDF enough?
• Follow-up in WSDL-S WG